

2448

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IDAHO TELEPHONE ASSOCIATION,
CITIZENS TELECOMMUNICATIONS
COMPANY OF IDAHO, CENTURY TEL OF
IDAHO, CENTURY TEL OF THE GEM
STATE, POTLATCH TELEPHONE COMPANY
and ILLUMINET, INC.

Complainants

vs.

QWEST COMMUNICATIONS, INC.,

Respondent.

CASE NO. QWE-T-02-11

IDAHO PUBLIC
UTILITIES COMMISSION

2002 SEP 30 AM 9:41

RECEIVED
FILED
☒ ☐

**Direct Testimony of
Paul Florack
on Behalf of
Illuminet, Inc.**

September 27, 2002

Q. Please state your name and business address.

A. My name is Paul Florack. My business address is 7400 West 129th Street, Overland Park, KS 66213.

Q. What is your current position?

A. I am Vice President for Network Services in Product Management and Development at Illuminet, a VeriSign Company (hereinafter "Illuminet").

Q. Please describe your qualifications

A. I have over 15 years of experience in the telecommunications industry. Prior to my work at Illuminet, I held positions in Engineering, Operations, and Technical Marketing for the Frontier Corporation where my responsibilities included planning the Signaling System No. 7 ("SS7") strategy for its regional telephone operations. I joined Illuminet's Product Management and Development department in 1993. I currently am Vice President of Network Services with responsibility for all Illuminet network service product lines, such as ISDN User Part ("ISUP") Trunk Signaling and Wireless Messaging. In addition, I am co-author of "Wireless Intelligent Networking", published by Artech House in 2001. This book discusses wireless intelligent networking using the SS7 network. I have been a speaker at several industry conferences hosted by organizations such as the Cellular Telephone Industry Association, Telestrategies, and the Association for Local Telephone Services. My educational background consists of a B.A. in Mathematics from Potsdam College, a B.S. in Electrical & Computer Engineering from Clarkson University, and an M.B.A. from the University of Rochester's Simon School.

Q. Who is Illuminet and what type of SS7 related services does it provide?

1 **A.** Illuminet is a third-party non-common carrier of SS7 services for a variety of
2 carrier/customers. Illuminet does not serve any end-users nor does Illuminet
3 carry any end-user traffic of its own or of its carrier/customers. Illuminet serves
4 over 900 telecommunications carriers across the country and internationally.
5 With respect to the SS7 network, Illuminet provides SS7 connectivity to all
6 segments of the telecommunications industry including Interexchange Carriers
7 ("IXCs"), Local Exchange Carriers ("LECs") (including both Incumbent Local
8 Exchange Carriers ("ILECs") and Competitive Local Exchange Carriers ("CLECs")),
9 and Commercial Mobile Radio Service ("CMRS") providers. In this testimony, I
10 refer to these entities as Illuminet's "carrier/customers." Illuminet provides these
11 carrier/customers with the ability to utilize Illuminet as their SS7 network in order
12 for these carrier/customers to be able to deliver advanced intelligent network
13 and database services to their end-user customers and to efficiently process end
14 user traffic over their networks. Illuminet also provides a billing clearinghouse
15 service for many customers. Illuminet deployed its network to provide a
16 competitive alternative to the SS7 services of other providers (such as Qwest
17 Corporation ("Qwest")), and has achieved nationwide connectivity of its SS7
18 services.

19
20 **Q. What are your current responsibilities at Illuminet?**

21 **A.** My responsibilities include profit/loss responsibility for a complete line of
22 Illuminet's SS7 network service offerings for both wireline and wireless carriers.
23 These product lines include SS7 Connectivity, ISUP Trunk Signaling, TCAP CLASS
24 Messaging, and Network Reporting services for competitive local exchange,
25 interexchange, independent telephone and wireless telecommunications carriers.
26 In addition, I am responsible for Illuminet's wireless network service offerings
27 that include seamless roaming, fraud, intelligent network, text messaging, and
28 mediation services.

29

1 **Q. Have you previously testified before the Idaho Public Service**
2 **Commission ("Commission")?**

3 **A.** No, this is my first appearance before this Commission.
4

5 **Q. Have you reviewed the Idaho Access Service Catalog ("Catalog") that**
6 **Qwest has filed, which is the subject of this proceeding?**

7 **A.** Yes.
8

9 **Q. Can you summarize your testimony?**

10 **A.** Yes. Illuminet requests that the Commission find the Qwest SS7 revisions to the
11 Idaho Access Service Catalog (hereinafter referred to as "SS7 Catalog Revisions")
12 unlawful and, further, have been improperly implemented because Qwest cannot
13 demonstrate that the SS7 signaling message charges in the Catalog are only
14 assessed on SS7 signaling messages associated with originated intrastate toll
15 traffic and originated interMTA CMRS end-user traffic of an Illuminet
16 carrier/customer. Qwest requires each Illuminet carrier/customer to provide a
17 Letter of Agency ("LOA") to Qwest, which authorizes Illuminet as that
18 carrier/customer's SS7 networker provider agent. However, Qwest is charging
19 SS7 signaling message charges from its Catalog on third party SS7 providers
20 regardless of the existence of interconnection arrangements entered into by that
21 third party SS7 provider's carrier/customers and is imposing such charges in a
22 manner in which Illuminet cannot identify or independently verify that the
23 charges are properly assessed by Qwest, which, in turn, would allow Illuminet
24 the confidence that it is properly passing through such charges to its
25 carrier/customers. Absent the relief being requested by Illuminet and Citizens
26 Telecommunications Company of Idaho ("CTC-I"), certain members of the Idaho
27 Telephone Association ("ITA"), Electric Lightwave, Inc ("ELI")(collectively the
28 "Complainants"), the substantial benefits of economy of scale and scope, which
29 Illuminet provides by aggregating demand for SS7 functionality for a broad range

1 of telecommunications carriers through its agency relationship with its
2 carrier/customers, will be seriously impaired if not lost by improperly imposing
3 additional and unwarranted costs upon Illuminet (and its carrier/customers) to
4 the detriment of developing competitive SS7 service alternatives and competitive
5 services to end users within Idaho.

6
7 In developing the SS7 Catalog Revisions, Qwest failed to properly consider the
8 pre-existing constraints on its ability to recover certain of its SS7 signaling
9 message costs under its Catalog. Those pre-existing constraints relate to the
10 treatment of SS7 signaling messaging associated with (1) jurisdictionally
11 local/Extended Area Service ("EAS") traffic, (2) jointly provided intrastate access
12 between two or more telecommunications carriers, (3) intraMTA CMRS traffic,
13 and (4) Qwest-provided intrastate end user toll services (collectively referred to
14 as "Non-Chargeable Usage Traffic"). This failure is evident from the tariff
15 provisions regarding the Percent Interstate Use ("PIU") factor, which establishes
16 the intrastate usage percent as "100% - PIU." The result is that SS7 signaling
17 messages associated with the end user traffic types for which intrastate access
18 charges do not apply are charged for under the SS7 Catalog Revisions. Qwest's
19 improper billing is exacerbated by Qwest's failure to provide adequate billing
20 detail in order for Illuminet to verify proper billing under the SS7 Catalog
21 Revisions. In addition to finding the SS7 Catalog Revisions unlawful, Illuminet
22 also requests that the Commission establish the following principle in order to
23 provide guidance to Qwest if it chooses to refile a corrected Catalog: The
24 assessment of SS7 signaling message charges by Qwest should be determined
25 by applying the terms and conditions of the agreement between Qwest and the
26 Illuminet carrier/customer (or other third-party provider) associated with the
27 specific type of end-user traffic (i.e., the interconnection arrangements for local
28 service/EAS/CMRS intraMTA/meet point billing traffic or the Catalog for
29 Interexchange toll traffic). To ensure the proper application of these
30 arrangements, Qwest should also provide sufficient detail to permit the company
31 receiving such charges to verify independently that such charges are assessed in

1 compliance with the proper arrangement. Because none of these prerequisites
2 are present in the SS7 Catalog Revisions, the Commission should grant each
3 element of relief that the Complainants are requesting, including adjusting all
4 Qwest intrastate message signaling charges in excess of approximately
5 \$1,020,000.00 as of September 7, 2002 that have been improperly assessed on
6 Qwest invoices to Illuminet.

7
8 **Q. What is Signaling System No. 7?**

9 **A.** SS7 is an industry standard protocol for performing signaling that supports call-
10 establishment, billing, routing, and information-exchange functions of the public
11 switched telephone network ("PSTN") without relying upon the PSTN's voice
12 paths. Signaling refers to the exchange of information required to provide and
13 maintain end-user voice and data services. SS7 utilizes high-speed packet data
14 and out-of-band signaling.

15
16 **Q. What types of functions does the SS7 network perform?**

17 **A.** Among other functions, the SS7 network is used for:
18 ▪ Basic call setup, management, and tear down via ISUP messaging;
19 ▪ Wireless services such as personal communications services (PCS), wireless
20 roaming, and mobile subscriber authentication;
21 ▪ Local Number Portability (LNP);
22 ▪ Toll-free (800/888/8XX) database services; and,
23 ▪ Enhanced call features such as Custom Local Area Signaling Services
24 ("CLASS") which includes automatic callback, calling party name/number
25 display and other intelligent network database services such as Line
26 Information Database ("LIDB").

1 **Q. What type of information is exchanged over the SS7 network?**

2 **A.** SS7 is a means by which elements of the telephone network exchange
3 information. Information is conveyed in the form of "signaling messages".

- 4 ▪ SS7 messages can convey information such as: I'm trying to set up a call on
5 trunk 067 placed from 208-784-1234 (Kellogg) to 208-733-5678 (Twin Falls)
- 6 ▪ I'm trying to make a call on trunk 67 placed from a mobile subscriber 208-
7 123-4567 to a Qwest wireline end user 208-123-4567
- 8 ▪ Someone just dialed 800-555-1212. Where do I route the call?
- 9 ▪ The called subscriber for the call on trunk 11 is busy. Release the trunk and
10 play a busy tone. The route to XXX is congested. Please don't send any
11 messages to XXX via this route.

12
13 **Q. Could you explain your reference to the SS7 network utilizing high-**
14 **speed packet data?**

15 **A.** Yes, I would be pleased to. SS7 signaling messages are exchanged between SS7
16 network components over 56 or 64 kilobit per second (kbps) bi-directional
17 channel signaling links (i.e., two-way signaling links). Signaling occurs "out-of-
18 band" on dedicated channels rather than on the voice channels (or so-called "in-
19 band" signaling). Each signaling point in the SS7 network is uniquely identified
20 by a numeric point code. Point codes are carried in signaling messages
21 exchanged between signaling points to identify the source and destination of
22 each message. Each signaling point uses a routing table to select the
23 appropriate signaling path for each message.

24
25
26 **Q. Please describe the major components that make up the SS7 network.**

27 **A.** The major components are:

- 28 ▪ SCP (Service Control Point)
- 29 ▪ STP (Signal Transfer Point)

- SSP (Service Switching Point) (In a CMRS network the SSP functionality is located in the Mobile Switching Center ("MSC"))

An SCP is the entity that provides the interface to a network database that provides storage for call routing information (such as in the case of an 800 call) or call completion information (for example, in the case of collect calls). The SCPs generally respond to SS7 signaling message queries initiated by SSPs or a MSC. The STP's main function is to switch and address SS7 signaling messages. An STP is connected to other STPs and are interconnected via facilities known as "B-links", which in order to ensure diverse routing, consist of at least four (4) links (two between each STP). STPs do not originate SS7 traffic other than network maintenance messages, which are not the type of SS7 signaling messages at issue in this proceeding. Finally, the SSPs are typically digital switches with SS7 messaging hardware and software that allow them to originate and terminate SS7 signaling messages for call set-up and tear down, and for accessing databases housed by an SCP. SSPs are connected to STPs via facilities known as "A-links", two of which, for redundancy, are required to connect the SSP with an associated STP. An SSP generates the initial SS7 signaling messages required when an end-user wants to make a call, and, on the terminating end of an end-user call, provides the SS7 signaling messages required to ensure that the voice path is available to the end-user that the customer is calling. Illuminet does not own or operate SSPs since it is not a telecommunications carrier providing services to end-users. Illuminet's customers are "carriers" and have established Illuminet as their network provider agent. These carrier/customers own and operate SSPs. In addition, some of Illuminet's carrier/customers own their own STPs. I have attached a diagram, which illustrates the typical SS7 network figuration. See Exhibit 401.

Q. What benefits does the SS7 network provide?

A. Compared to in-band signaling, out-of-band signaling provides:

- 1 ▪ Faster call setup times (compared to in-band signaling using multi-frequency
- 2 (MF) signaling tones)
- 3 ▪ More efficient use of voice circuits;
- 4 ▪ Support for Intelligent Network (IN) services which require signaling to
- 5 network elements without voice trunks (e.g., database systems);
- 6 ▪ Improved control over fraudulent network usage.

7

8 **Q. What benefits does Illuminet bring to its carrier/customers?**

9 **A.** Illuminet provides its carrier/customers with the economies of scale and scope of

10 the largest independently owned SS7 network in the United States. Illuminet is

11 able to offer wireline and wireless telecommunications carriers diversity,

12 reliability and redundancy, and provide a full range of services to meet their

13 respective end user requirements as well as federal and state mandates such as

14 number portability. In light of its commitment to provide state-of-the-art SS7

15 signaling service, Illuminet is able to provide its carrier/customers an alternative

16 to their own deployment of a separate SS7 network, which, in turn, saves

17 financial and internal resources for them. Moreover, Illuminet's efficiencies

18 provide its carrier/customers the ability to enter the marketplace quickly with all

19 its necessary SS7 functionality in place. Because Illuminet does not compete

20 with its carrier/customers for any end-user customers, its carrier/customers can

21 turn to a third party provider such as Illuminet to provide their portion of the SS7

22 network rather than relying solely upon a telecommunications carrier that the

23 Illuminet carrier/customers compete with for end-users and end-user voice and

24 data traffic.

25

26 **Q. Is Illuminet the SS7 network provider agent for its carrier/customers**

27 **including the co-complainants in this proceeding?**

28 **A.** Yes, Illuminet is the SS7 network provider for its carrier/customers including

29 certain of the Co-Complainants in this proceeding. Illuminet establishes a

1 relationship to act on behalf of its carrier/customers for the act of ordering
2 telecommunications services and when doing so with Qwest is required to submit
3 a LOA reflecting that relationship. Through the LOA process, Qwest requires that
4 Illuminet provide to Qwest LOAs from any Illuminet carrier/customer designating
5 Illuminet as its SS7 network provider agent. Examples of these LOAs are being
6 provided by ELI and CTC-I. Moreover, Qwest has informed Illuminet that the
7 ordering process that an Illuminet carrier/customer undertakes with Qwest for
8 that carrier/customer's voice or data trunk must specifically identify the point
9 code associated with that carrier/customer's switch and the identity of its SS7
10 provider. A similar Qwest policy regarding LOA's as a precondition of service is
11 also reflected on the Qwest Website at
12 <http://www.qwest.com/wholesale/preorder/index.html>
13

14 **Q. Are there any additional operating efficiencies that an Illuminet**
15 **carrier/customer achieves by using Illuminet?**

16 **A.** Yes. Illuminet's carrier/customers have the need to provide SS7 signaling with
17 multiple carriers, including Qwest. Our carrier/customers connect to Illuminet so
18 that they can take advantage of the opportunity to connect with one third party
19 SS7 provider and, through this connection, have access to multiple LECs, CMRS
20 providers and IXC's. This eliminates the need for such carrier/customers to
21 establish SS7 network arrangements with other SS7 networks, thereby creating a
22 more technically and economically efficient means for SS7 service provisioning.
23 Moreover, by connecting to a third party SS7 network, like that operated by
24 Illuminet, carriers can minimize administrative costs associated with managing
25 multiple connections to various signaling partners, as well as investment in
26 additional hardware and facilities to support those connections.
27

28 **Q. Can you describe the administrative and facilities savings that you just**
29 **referenced?**

30 **A.** When a carrier/customer connects to Illuminet and requests service into an ILEC
31 territory such as that served by Qwest, Illuminet takes the lead in communicating

1 the required information in the form of Access Service Requests ("ASR") and
2 pursuant to the requirements of Qwest, arranging for the LOA from its
3 carrier/customer designating Illuminet as that carrier/customer's agent to
4 conduct all negotiations and issue orders for ISUP signaling. Illuminet also acts
5 as a central point of contact with the ILECs regarding SS7 network issues for
6 Illuminet's carrier/customers.

7
8 Likewise, third party SS7 providers also provide Transaction Capability Part
9 ("TCAP") services such as LNP, 800, calling name, LIDB and CLASS in
10 competition with the ILEC. Illuminet's LNP data service, for example, provides
11 carriers the ability to obtain call completion information (i.e., location routing
12 numbers ("LRNs")) necessary to complete calls without investing in the LNP
13 infrastructure. The ILECs offer such a service but it is typically bound to LRN
14 information for the specific Number Portability Administration Center ("NPAC")
15 region in which the ILEC operates. Illuminet provides LRN information across all
16 seven US NPACs.

17
18 **Q. Does Qwest realize any benefits from the existence of third party SS7**
19 **providers such as Illuminet?**

20 **A.** Definitely. The same economies of scale and scope noted above benefit not only
21 the Illuminet carrier/customer, but also Qwest. For example, by establishing
22 physical interfaces to third party SS7 providers, Qwest has to deploy SS7
23 monitoring equipment for billing and surveillance to monitor fewer links than it
24 would if all telecommunications carriers directly connected to Qwest.
25 Furthermore, via port and facility connections to Illuminet that are paid 100% by
26 Illuminet, Qwest has immediate SS7 access to Illuminet's carrier/customer base.
27 These connections allow Qwest to establish the necessary SS7 signaling via
28 Illuminet to the Illuminet carrier/customers necessary for end user calls to be
29 completed. These connections also allow Qwest to access the Illuminet

1 carrier/customer with SS7 signaling without Qwest having to incur the expense
2 associated with direct connections to those carriers.

3
4 **Q. Does Qwest pay Illuminet for the use of Illuminet's service?**

5 **A.** No, even though Illuminet incurs costs associated with the delivery and receipt of
6 SS7 signaling messages generated by Qwest on behalf of its end-user customer's
7 traffic, Qwest pays nothing to Illuminet. Qwest is shifting its SS7 costs to the
8 Illuminet carrier/customer because of Qwest's inability to properly measure,
9 identify and bill for only those intrastate SS7 signaling messages properly
10 included under the SS7 Catalog Revisions. Further, instead of paying for
11 termination of its end user traffic via other networks, Qwest's application of its
12 SS7 Catalog Revisions has other network providers paying Qwest.

13
14 **Q. Does Illuminet transmit any SS7 signaling messages on its own behalf**
15 **that are subject to the SS7 Catalog Revisions?**

16 **A.** No. All of the SS7 signaling messages that traverse the Illuminet SS7 network
17 for which Qwest charges Illuminet, including Qwest originated SS7 signaling
18 messages and those SS7 signaling messages originated by Illuminet's
19 carrier/customers for termination on Qwest's network, are associated with an
20 underlying voice or data message from a provider of end-user
21 telecommunications services. In fact, Qwest requires Illuminet to provide a LOA
22 from each of its carrier/customers as a condition to Qwest's provision of its SS7
23 connectivity for that Illuminet carrier/customer.

24
25 **Q. In Illuminet's view is SS7 signaling integral to the transmission of the**
26 **underlying end user voice and data on the PSTN?**

27 **A.** Yes. SS7 signaling, and specifically ISUP messaging, was created and exists
28 solely to assist in the transmission of underlying voice and data messaging from
29 one end-user to another in order to maximize efficient and economic use of the

1 PSTN. The SS7 signaling messages at issue here are an integral component of
2 the end user traffic that is carried over the PSTN. Qwest recognizes this
3 relationship by the virtue of the fact the SS7 Catalog Revisions were previously a
4 component of the switched access charges assessed to an IXC for telephone toll
5 traffic. Only since the inception of unbundling by Qwest of SS7 signaling, albeit
6 improperly implemented, has Illuminet heard suggestions from Qwest that the
7 SS7 network is no longer an integral component of the end user traffic the SS7
8 network supports. From a practical perspective, however, where SS7
9 connections are in place between Illuminet and its carrier/customers with Qwest,
10 the failure of those connections will result in the end user traffic not being
11 completed over the PSTN.

12
13 **Q. Should the SS7 Catalog Revisions be allowed to remain in effect?**

14 **A.** No. The SS7 Catalog Revisions are seriously deficient and unjustifiably and
15 unfairly impact Illuminet and our carrier/customers. Therefore, the Commission
16 should find the SS7 Catalog Revisions are unlawful and have been incorrectly
17 applied by Qwest unless and until Qwest is able to bill SS7 signaling messages
18 correctly and it makes the Catalog modifications necessary to exclude from billing
19 SS7 signaling messages associated with Non-Chargeable Usage Traffic.

20
21 **Q. Is Illuminet opposed to Qwest's unbundling of SS7 services?**

22 **A.** No. In fact, Illuminet supports the concept of unbundling which is clearly
23 demonstrated by the fact that Illuminet developed the software (AMAT7) that
24 Qwest uses in part to bill for unbundled services. Illuminet is opposed, however,
25 to the current improper application of such unbundling by Qwest for the reasons
26 stated herein and those provided by Mr. Lafferty in his testimony.

27
28 **Q. In general, what are Illuminet's concerns regarding the SS7 Catalog**
29 **Revisions and its implementation?**

1 **A.** Illuminet believes Qwest's SS7 Catalog Revisions are deficient in several areas.
2 The Catalog fails to disaggregate intrastate SS7 signaling messages associated
3 with intrastate toll calls to which Qwest's Catalog applies (i.e., IXC traffic and
4 intraLATA or interMTA toll traffic generated by the end user customer of the LEC
5 or CMRS provider to Qwest end-users) and SS7 signaling messages associated
6 with traffic to which Qwest's Catalog does not apply (e.g., local and extended
7 local calling area service ("EAS") end user traffic, jointly provided exchange
8 access, intraMTA CMRS traffic, and intraLATA toll traffic sent from Qwest to a
9 LEC (what I referred to earlier as "Non-Chargeable Usage Traffic"). In addition,
10 implementation of the SS7 Catalog Revisions has resulted in inequitable and anti-
11 competitive impacts upon both Illuminet and the carrier/customers it serves.
12 Illuminet believes that Qwest has prematurely unbundled SS7 signaling
13 messaging from its Catalog. In discussions between Qwest and Illuminet, Qwest
14 has indicated that its billing system will not allow it to bill for SS7 signaling
15 messages by the type of underlying telephone traffic, i.e., Qwest is unable to
16 disaggregate SS7 signaling messages associated with intrastate toll traffic and
17 Non-Chargeable Usage Traffic. Rather than take the steps necessary to adjust its
18 billing systems to bill correctly, Qwest apparently would rather attempt to
19 convince the Commission that Qwest should bill for SS7 signaling messages
20 associated with all calls regardless of whether such SS7 signaling messages are
21 associated with end-user traffic that is properly subject to its Catalog.
22 Exhibit 402 is a copy of an actual bill from Qwest that shows the lack of any
23 billing detail to inform Illuminet what is being billed for and to allow Illuminet to
24 verify such charges. See Exhibit 402.

25

26 **Q. Could you explain what you mean by "disaggregating SS7 signaling**
27 **messages associated with Non-Chargeable Usage Traffic"?**

28 **A.** For example, under the SS7 Catalog Revisions, all messages other than those
29 associated with interstate traffic are assessed intrastate access charges,
30 including, but not limited to, SS7 signaling messages that support "local" end-

1 user traffic, jointly provided exchange access, CMRS intraMTA traffic and Qwest's
2 intraLATA toll end user traffic sent from Qwest to LEC or CMRS end users. See
3 Exhibit 403, Qwest Responses to Complainants Discovery Request 004. Qwest's
4 attempt to charge for SS7 signaling messages that are associated with these
5 calls should not be allowed. An access charge tariff addresses the charges
6 assessed by a telephone company to a telephone toll provider associated with
7 that telephone toll provider's use of the telephone company's network for the
8 origination and/or termination of that telephone toll provider's traffic. Thus, the
9 SS7 signaling messages associated with local/EAS traffic, jointly provided
10 exchange access, CMRS intraMTA traffic and toll traffic originated by Qwest end-
11 users and carried by Qwest and sent to an Illuminet carrier/customer should be
12 classified as Non-Chargeable Usage Traffic under Qwest's SS7 Catalog Revisions.

13
14 **Q. What provision of the Catalog supports your conclusion?**

15 **A.** Section 2, Page 19, Release 2, and 2.3.10 B.5. Jurisdictional Reports
16 Requirements, Idaho Access Service Catalog states that the intrastate charges
17 under this proposed tariff shall apply to all SS7 signaling messages derived by
18 the formula "100%-PIU". The effect of this provision reflects Qwest's view that it
19 is proper to recover all SS7 signaling message costs through the SS7 Catalog
20 Revisions except those recovered through the interstate access tariff. The tariff
21 states "When a customer initially orders CCSAC Service in a LATA, the customer
22 shall state in its order a PIU factor in a whole (i.e. a number 0-100). The
23 customer will designate the number obtained by subtracting the projected PIU
24 factor furnished by the customer from 100 as the projected intrastate percentage
25 of use. The projected PIU factor is used by the company to apportion the
26 message, monthly and nonrecurring charges associated with the CCS Link, STP
27 Port, Entrance Facility and Direct Link Transport between interstate and
28 intrastate."

1 **Q. What do you mean by "jointly provided exchange access" on an**
2 **intrastate toll call?**

3 **A.** I use the term exchange access to describe the use of a telephone company's
4 local network for the origination and termination of telephone toll calls. The
5 situation I am referencing arises when both: (1) the end user making an
6 intrastate toll call is using an IXC as its toll provider that is neither Qwest or the
7 Illuminet carrier/customer; and (2) the networks of both the Illuminet
8 carrier/customer and Qwest are used by the IXC in originating or terminating its
9 telephone toll traffic (such as where the Illuminet carrier/customer operates an
10 end office subtending a Qwest tandem and Qwest operates the tandem where
11 the IXC's Point of Presence is located.) In this instance, the networks of both
12 Qwest and the Illuminet carrier/customer are providing portions of the network
13 necessary for the IXC to originate or terminate its toll traffic, and therefore, are
14 "jointly" providing exchange access to the IXC. In this situation, the IXC is billed
15 by Qwest and the Illuminet carrier/customer through what is commonly referred
16 to as a meet point billing arrangement.

17
18
19 **Q. Is this a concern under the SS7 Catalog Revisions?**

20 **A.** Yes. Under the existing SS7 Catalog Revisions, Qwest is billing Illuminet SS7
21 signaling message charges when Qwest and Illuminet's carrier/customers are
22 jointly providing exchange access on an intrastate toll call.

23
24 **Q. Why does this situation create an issue under the SS7 Catalog**
25 **Revisions?**

26 **A.** It is my understanding that the method by which LECs bill IXCs for "jointly
27 provided exchange access" is described in industry guidelines and are typically
28 set forth in the contracts between the LECs. For example, the LECs may agree
29 to bill the IXC separately (according to each LEC's access tariff) for the IXC's use
30 of that portion of each of the LEC's network, or the LEC may agree that one of
31 them will aggregate each LEC's tariffed access charges and bill the IXC for all the

1 exchange access that the IXC uses related to its end user toll traffic (and to
2 reimburse the non-billing LEC its access charges paid by the IXC). Qwest's SS7
3 Catalog Revisions violate either of these types of meet point billing contracts.
4

5 **Q. What are the anti-competitive concerns that Illuminet has with respect**
6 **to Qwest's SS7 Catalog Revisions?**

7 **A.** As indicated above, Illuminet and other third party providers of SS7 services are
8 direct competitors to Qwest in the SS7 marketplace, and many of our
9 carrier/customers also compete for end-users with Qwest. The SS7 Catalog
10 Revisions result in the unwarranted assessment of intrastate access charges
11 associated with Non-Chargeable Usage Traffic, thereby exposing Illuminet and its
12 carrier/customers to significant increases in the cost of doing business and
13 threatening Illuminet and its carrier/customers continued competitive viability
14 and market position. Moreover, Illuminet believes that there is a potential for
15 anti-competitive and discriminatory treatment by Qwest in the way Illuminet and
16 its carrier/customers are charged for SS7 signaling messages by Qwest
17 associated with Non-Chargeable Usage Traffic, particularly local traffic, versus
18 how Qwest may charge its own direct connect SS7 signaling customers. Qwest
19 must convincingly prove that a direct connect customer to Qwest (i.e., the
20 customer connects its SSP directly to a Qwest STP) would be treated in the same
21 manner as those carriers using a third party SS7 provider. Otherwise Qwest
22 could engage in undetected and unreasonable discrimination by marketing its
23 services at a less costly alternative to any other SS7 provider by simply failing to
24 apply the SS7 Catalog Revisions structure to its direct connect SS7 customers. If
25 this were to occur, Illuminet runs the risk of losing customers who may migrate
26 to Qwest and/or find it extremely difficult to market its services to Qwest's
27 existing direct connect customers who will, absent a finding of unlawfulness
28 and/or improper implementation of the SS7 Catalog Revisions, be faced with
29 additional charges for local SS7 signaling messages if they become customers of
30 Illuminet or another SS7 provider. Under Qwest's implementation of the SS7

1 Catalog Revisions, existing Illuminet carrier/customers have additional Qwest
2 charges passed on to them by Illuminet pursuant to their arrangements with
3 Illuminet regardless of how, for example, their interconnection agreements
4 ("ICAs") with Qwest treat SS7 signaling message charges associated with local
5 end-user traffic exchanged with Qwest. To the extent that such charges are not
6 authorized under a particular ICA, the SS7 Catalog Revisions allow Qwest to
7 unilaterally and unlawfully increase the costs of operations of the Illuminet
8 carrier/customer.

9
10 **Q. Do you have comments and/or observations regarding Illuminet's**
11 **charges to its carrier/customers?**

12 **A.** Illuminet's business, as shown in this testimony, is based on providing real value
13 to the industry, including Qwest, and does not involve obtaining services for
14 which it or its carrier/customers do not fully compensate Qwest. The service
15 Illuminet provides is a hubbing function that allows its carrier/customers access
16 to Qwest's SS7 network along with access to SS7 networks throughout the
17 country. Illuminet bears all the costs of the signaling links and STP resources
18 including ongoing network administration and maintenance. Illuminet is not
19 reselling or repackaging Qwest's SS7 signaling messages and charges for its
20 carrier/customers, but charging only for the Illuminet SS7 network services it
21 provides.

22
23 **Q. Has Qwest provided any connectivity options to address SS7 signaling**
24 **messages associated with local end-user traffic?**

25 **A.** Yes. In discussions between Qwest and Illuminet, Qwest has previously
26 suggested that Illuminet could establish separate connections into Qwest for SS7
27 traffic that is local in nature. See Exhibit 403, Qwest Response to Complainants
28 Discovery Request No. 44. Apparently, that would solve Qwest's billing problem
29 and allow them to treat local traffic separately.

1

2

Q. Has Illuminet pursued that option?

3

4 **A.** No. That option is neither technically nor economically feasible. It would require
5 the STPs to route SS7 signaling message traffic based on the nature of the
6 underlying end user traffic, which is not an available or practical feature in an
7 STP. The only other way to separate such traffic would be for all Illuminet
8 carrier/customers to establish a second separate point code in their SSPs and use
9 that point code for only local call routing. Some SSPs do not support that
10 capability, and even if they did, it would require complete duplication of
11 Illuminet's and their carrier/customer's SS7 networks in order to keep the local
12 traffic separate. Also, where Illuminet carrier/customers interconnect their own
13 STPs (not the central offices) with Illuminet's STPs, such a signaling
14 configuration is not technically feasible. Moreover, Qwest has not demonstrated
15 that it maintains this type of separation in its own network because its
16 connectivity with Illuminet and the Illuminet's carrier/customers carry both
17 access and Non-Chargeable Usage Traffic. Further, it is completely unreasonable
18 as a solution to Qwest's billing problem under the SS7 Catalog Revisions to
19 impose these additional facility and operational expenses upon Illuminet and
20 other entities simply because Qwest has an unbundled SS7 tariff structure under
21 which it cannot properly bill. In any event, it is not clear these arrangements
22 would address SS7 signaling messages associated with jointly provided exchange
23 access, nor SS7 signaling messages for Qwest's end user traffic.

23

24

Q. What would Illuminet like the Commission to do in this proceeding?

25

26

27

28

29

A. Illuminet would like the Commission to determine that the application of the SS7
Catalog Revisions is unlawful for the reasons stated in our complaint and
supported in this testimony, and require Qwest to exchange SS7 signaling
messages with the Complainants and other LECs, CMRS and IXC's, through
Illuminet if they so choose, at the rates, terms and conditions set forth in the

1 various interconnection agreements, meet point billing arrangement and the
2 Catalog for all end user traffic as Qwest did prior to the approval of the SS7
3 Catalog Revisions. In addition, the Commission should require Qwest to refund
4 any monies paid to Qwest by complainants for the traffic that is subject to this
5 complaint. Furthermore, Illuminet would like the Commission to direct Qwest to
6 refile any SS7 unbundling terms and conditions in the Catalog only when it can
7 demonstrate that it can properly exclude from billing under any proposed Catalog
8 all Non-Chargeable Usage Traffic. In addition, Illuminet requests the
9 Commission establish a fundamental principle that will govern the relationship
10 Qwest seeks to establish with third party providers of SS7 services such as
11 Illuminet.

12
13 **Q. What is the fundamental principle you are referencing?**

14 **A.** It is based on common sense: The arrangement that governs the handling of
15 the end-user traffic equally governs the treatment of the SS7 signaling messages
16 since those SS7 signaling messages are an integral component of the end-user
17 traffic. Thus, if SS7 signaling messages are associated with intrastate toll end-
18 user traffic, and intrastate toll is subject to the Access Catalog, the Access
19 Catalog applies. If SS7 signaling messages are associated with intrastate toll end
20 user traffic and the exchange access associated with such intrastate toll is
21 subject to some arrangement other than the Access Catalog, the terms of that
22 arrangement should apply. Similarly, if SS7 signaling messages are associated
23 with local end-user traffic, CMRS intraMTA traffic or jointly provided exchange
24 access, and such traffic is subject to an ICA or other contract, the agreement or
25 contract should apply.

26
27 **Q. Has Qwest been willing to recognize this principle?**

28 **A.** No. Qwest has not been willing to recognize that Illuminet acts on behalf of its
29 carrier/customers despite the fact that Qwest does treat Illuminet this way for

1 operational purposes (Illuminet is required to submit LOAs from our
2 carrier/customers before Qwest will perform any network translation work).

3
4 **Q. If the existing SS7 Catalog Revisions are not found unlawful, what**
5 **alternative relief would Illuminet request that the Commission grant?**

6 **A.** Assuming, for sake of argument, that the Commission would not find the SS7
7 Catalog Revisions unlawful, Illuminet requests that the Commission take the
8 following actions. First, that the Commission direct Qwest to incorporate within
9 its SS7 Catalog Revisions the fundamental principle noted above in an explicit
10 and clear manner. Second, Illuminet requests that the Commission require
11 Qwest to refrain from billing Illuminet and its carrier/customers for any Non-
12 Chargeable Usage Traffic as I have defined that term from its Catalog and, in
13 any event, the Commission should direct Qwest to refund or credit Illuminet for
14 Non-Chargeable SS7 messaging.

15
16 **Q. Can Qwest identify Illuminet's carrier/customers for purposes of billing**
17 **them for SS7 messaging in accordance with their ICAs?**

18 **A.** Through the LOA process Qwest is informed of each Illuminet carrier/customer
19 prior to the establishment of any necessary network signaling arrangements
20 between Illuminet and Qwest for the exchange of SS7 signaling. Accordingly,
21 and in addition to the ordering process associated with that carrier/customer's
22 voice and data trunk requirements, all information necessary for Qwest to verify
23 the carrier/customers of Illuminet is in Qwest's possession. With this
24 information, Qwest can then determine which of the Illuminet carrier/customers
25 have interconnection agreements with Qwest that permit SS7 signaling message
26 charges for local traffic. Based on the volume of local messages it receives from
27 the point codes associated with those Illuminet carrier/customers, Qwest can
28 then assess the necessary charges directly to the affected Illuminet
29 carrier/customers pursuant to the terms and conditions of the relevant ICA. If

1 the ICA between the Illuminet carrier/customer and Qwest allows Qwest to
2 charge SS7 signaling for local messages that Qwest originates, then Qwest could
3 also directly charge those SS7 signaling messages to that carrier/customer.
4

5 **Q. Isn't this arrangement burdensome to Qwest?**

6 **A.** No. Qwest has to demonstrate that it can properly implement the SS7 Catalog
7 Revisions. Moreover, Qwest currently manages multiple interconnection
8 agreements with various telecommunications carriers, some of which presumably
9 have different terms and conditions. Therefore, administration of this
10 relationship should not be any additional significant burden. If this option is
11 chosen by the Commission, Qwest's SS7 Catalog Revisions would need to be
12 amended to ensure that the PIU provisions also included language that exclude
13 from the charges SS7 signaling messages associated with Non-Chargeable Usage
14 Traffic. If Qwest is unable to accurately measure SS7 signaling messages by
15 type of underlying telephone traffic, then Illuminet proposes the concept of a
16 "Non-Chargeable Usage Traffic" factor, where such factor would include all SS7
17 signaling message types associated with Non-Chargeable Usage Traffic.
18 Moreover, this would be a starting point for the type of revisions to the SS7
19 Catalog Revisions required to ensure proper billing and billing detail by Qwest.
20 See Exhibit 404, Illuminet's Proposed Language for the Qwest Access Catalog.
21 Illuminet would be open to renaming this new factor to some other term as long
22 as the term and the Catalog are clear and unambiguous. In any event, if this is
23 a significant burden, then Qwest should withdraw its SS7 Catalog Revisions until
24 it can avoid this manual process and record actual SS7 signaling message usage
25 by point code, by jurisdiction and type of SS7 signaling message.
26

27 **Q. In your view, does the capability exist to record the SS7 signaling**
28 **message usage you have outlined?**

1 **A.** Yes. Qwest has purchased a data capturing system known as AMAT7 from
2 Agilent. As indicated above, Illuminet developed the software for the AMAT7
3 system. This system provides the fundamentals to allow Qwest to capture the
4 SS7 signaling messages on which their SS7 Catalog Revision is based. This
5 robust system is capable of identifying not only how many SS7 signaling
6 messages traverse a given set of A-links and B-links, but it can also supply more
7 detailed information including the point codes of the switches used to process
8 the call. This information can be used to identify the companies that are placing
9 calls to Qwest or receiving calls from Qwest. This system can also distinguish
10 between the types, such as TCAP and ISUP, of SS7 signaling messages that are
11 being transmitted over a link-set.

12 **Q. Has the full AMAT7 measurement capability described above been**
13 **deployed by Qwest?**

14 **A.** No, apparently not, based on the billing detail Illuminet receives from Qwest and
15 Qwest responses to discovery. See Exhibit 403, Qwest Responses to
16 Complainants Discovery Request Nos. 41 and 42.

18 **Q. Is it proper for the Commission to require Qwest to implement**
19 **automated measurement requirements?**

20 **A.** Yes, as a matter of policy and in a manner entirely consistent with the FCC
21 statement, Qwest, should bear the burden to demonstrate it can properly
22 implement its tariff structure and has either the manual or automated billing
23 capability in place prior to implementing the SS7 Catalog Revisions at issue. The
24 underlying FCC decision upon which Qwest relies for its SS7 Catalog Revisions
25 allowed ILECs to propose an unbundled SS7 rate structure such as that filed by
26 Qwest in this proceeding and to "acquire the appropriate measuring equipment
27 as needed to implement such a plan." *Access Charge Reform*, First Report and
28 Order, 12 FCC Rcd 15982, 16090 (para. 253) (1997).

29

1 **Q. Did Illuminet oppose the FCC action?**

2 **A.** No. There was no reason to oppose a policy of unbundling when the FCC
3 recognized that the proponent of such unbundling must properly implement its
4 unbundled structure. Illuminet is not opposed to unbundling if it is implemented
5 properly, which is not the case in Qwest's SS7 Catalog Revisions. Moreover, the
6 implementation of the interstate tariff structure required only the disaggregation
7 of SS7 signaling messages between interstate telephone traffic and intrastate
8 telephone traffic. However, while that disaggregation was difficult enough to
9 implement, the failure of Qwest to fully implement adequate measurement
10 capabilities in the monitoring technology it uses and provide adequate billing
11 detail on its customer invoices are now more pronounced. Qwest's inability to
12 implement the SS7 Catalog Revisions with the proper recognition that intrastate
13 SS7 signaling messages must be further disaggregated based on the distinct
14 intrastate end-user traffic types requires this Commission's scrutiny.

15
16 **Q. Why would the relief Illuminet is requesting advance the public**
17 **interest?**

18 **A.** As indicated before, the relief that Illuminet is requesting places the
19 responsibility for the proper implementation of the SS7 Catalog Revision
20 structure upon Qwest. Likewise, the requested relief avoids the improper billing
21 under the Catalog of SS7 signaling messages associated with Non-Chargeable
22 Usage Traffic. Further, the relief properly reflects the meet point billing
23 arrangements in place between Qwest and the Illuminet carrier/customers. The
24 relief also avoids the anti-competitive consequences noted above resulting from
25 Qwest's SS7 Catalog Revisions. Moreover, the relief will avoid Qwest double
26 recovering certain of its SS7 signaling message costs through intrastate access
27 charges for SS7 signaling messages associated with the local traffic Qwest's end-
28 users generate and receive from other telecommunication providers.

1 **Q. How could Qwest "double recover" its SS7 signaling message costs**
2 **associated with that local traffic that its end-users generate and**
3 **receive from other carriers?**

4 **A.** At least conceptually, Qwest should have apportioned its SS7 costs in some
5 manner among all of its services, including local services that utilize Qwest's SS7
6 capabilities. Likewise, through its ICAs with telecommunications carriers, Qwest
7 presumably has included recovery of the SS7 signaling messaging costs
8 associated with the local traffic being delivered by those providers for
9 termination to Qwest's local end-users. Accordingly, if Qwest continues to assess
10 Illuminet and its carrier/customers for SS7 signaling messages associated with
11 local traffic under the SS7 Catalog Revisions, that action raises the distinct
12 probability of double recovery by Qwest of its "local" SS7 costs (let alone shifting
13 the recovery of those costs to its competitors). Moreover, to the extent that
14 Qwest is terminating its end-user intrastate toll traffic to the Illuminet
15 carrier/customer, the charges for the SS7 signaling messages should be part of
16 the costs recovered from the toll rates charged by Qwest to its end-users. To
17 allow Qwest to recover these SS7 signaling message costs from the Illuminet
18 carrier/customer would permit Qwest to recover these costs twice—once from its
19 toll end-user and another from the Illuminet carrier/customer.

20
21 **Q. By its approach, is Illuminet trying to avoid paying proper SS7 charges**
22 **from Qwest?**

23 **A.** Absolutely not. While I am aware that Qwest may very well suggest this, as it
24 has claimed in other proceedings, it is entirely false and inappropriate. Illuminet
25 pays Qwest for the dedicated facilities that connect Qwest's STPs with Illuminet's
26 STPs, i.e., the B-links. Likewise, where Illuminet is providing the SS7 network on
27 behalf of one of its toll provider carrier/customers, Illuminet and its toll provider
28 carrier/customer fully expect that Qwest will assess its SS7 signaling message
29 charges associated with that traffic, to Illuminet. Illuminet, in turn, will then pass
30 through those charges to its toll provider carrier/customer. Thus, any additional

1 costs that Qwest bears as a result of the intrastate or interMTA toll end-user
2 traffic generated by an Illuminet toll provider carrier/customer would be
3 recovered, and, most importantly, recovered from the very carrier/customer (in
4 this case the toll provider) that has received the reduction in the intrastate access
5 charges. It bears noting again that all of the SS7 signaling messages that
6 traverse the Illuminet SS7 network for which Qwest charges are associated with
7 an underlying voice or data message from a provider of end-user
8 telecommunications services.

9
10 **Q. But Illuminet is a "customer" under the existing Qwest SS7 Catalog**
11 **Revisions so why is Qwest wrong in demanding that Illuminet pay**
12 **charges for such services?**

13 **A.** Illuminet has obtained B-links and port connection to Qwest's SS7 network
14 through Qwest's Tariff F.C.C. No. 1. That connection uses the same network
15 configuration and facilities for three distinct types of SS7 signaling messaging
16 generated by Illuminet's carrier/customers and similar traffic being generated by
17 Qwest, i.e., SS7 signaling messaging associated with interstate exchange access,
18 intrastate exchange access and local exchange (including EAS and CMRS
19 intraMTA) services. As explained above, charges, terms and conditions for each
20 type of traffic are determined pursuant to the rules applicable to that type of end-
21 user traffic. Therefore, Illuminet's rights to ensure that charges associated with
22 such SS7 signaling messages are proper and are derivative of the rights of its
23 carrier/customers. While Illuminet is a customer of Qwest since it has ordered
24 the necessary B-links to connect to Qwest's STPs, that structure does not permit
25 Qwest to ignore that its SS7 Catalog Revisions assess intrastate access charges
26 for traffic for which it has established different treatment under agreements that
27 Qwest has with the Illuminet carrier/customers. Again, Qwest requires that
28 Illuminet disclose the identity of its carrier/customers through LOAs and
29 Illuminet's carrier/customers order voice/data trunk groups that reflect their SS7

1 service provider. To suggest therefore that Qwest has no customer relationship
2 jointly with the Illuminet carrier/customer and Illuminet defies the facts.
3

4 **Q. On what basis would Illuminet pass through Qwest's charges under the**
5 **SS7 Catalog Revisions to the Illuminet carrier/customer?**

6 **A.** Illuminet's arrangements with its carrier/customers provide that Illuminet will
7 flow through charges of other SS7 providers such as those SS7 signaling
8 message charges from Qwest. Under these arrangements Illuminet flows
9 through such charges without markup. See Exhibit 405 Confidential and
10 Proprietary Exhibit of Example of Contract Extract between Illuminet and ELI.
11

12 **Q. Has Illuminet explained its function as a pass-through entity to Qwest?**

13 **A.** Yes, many times, but Qwest apparently chooses to ignore the fact that
14 Illuminet's carrier/customers have been paying Qwest for the SS7 signaling
15 messages which passes through Qwest's network. Not only are Qwest's SS7
16 costs not increased when a carrier connects through Illuminet, but will often be
17 decreased because of the economies of scale offered by Illuminet. It is clearly
18 incorrect for Qwest to claim that it would not be fully compensated for its SS7
19 costs through its switched access charges to Illuminet's carrier/customers when
20 applied to the appropriate switched access traffic only.
21

22 **Q. Have you raised your concerns with Qwest?**

23 **A.** Yes. Illuminet has had a number of discussions with Qwest on this issue.
24 Moreover, in November of 2000, Illuminet provided to Qwest a position paper
25 (See Exhibit 406) outlining the position that Illuminet now requests the
26 Commission adopt here. Unfortunately, no substantive resolution of the issues
27 raised in the position paper or the SS7 Catalog Revisions have been made.
28

29 **Q. Is Qwest's claim that its Catalog Revisions are revenue neutral to it a**

1 **sufficient basis for Commission approval?**

2 **A.** No. For the reason I have stated, "revenue neutrality" to Qwest (even assuming
3 it exists) is not a sufficient basis for the Commission to conclude that the SS7
4 Catalog Revision is consistent with the applicable statute and Commission Rules.
5 While the SS7 Catalog Revisions may be revenue neutral to Qwest, by applying
6 access charges on Non-Chargeable Usage Traffic, Qwest has enacted a tariff that
7 is certainly not revenue neutral to Illuminet and Illuminet's carrier/customers but
8 has shifted a substantial cost burden to them.

9
10 **Q. Does Illuminet object to the principle that recovery of SS7 signaling**
11 **costs should be related to a customer's use of SS7 signaling?**

12 **A.** No. As explained above, Illuminet supports the concept of unbundling charges
13 for SS7 signaling. Our problem is that by recovering all SS7 signaling message
14 costs through switched access rates, Qwest is able to charge Illuminet for SS7
15 signaling messages associated with traffic that is not itself subject to the Catalog
16 and could not, therefore, be charged directly to Illuminet's carrier/customers. As
17 approved, the SS7 Catalog Revisions allow Qwest to circumvent existing methods
18 of cost recovery or sharing for this Non-Chargeable Usage Traffic. For example,
19 some Non-Chargeable Usage Traffic is subject to ICAs that provide either for
20 Reciprocal Compensation or Bill and Keep, and therefore additional SS7 signaling
21 message charges by Qwest should not be allowed. Similarly, where Qwest and
22 Illuminet's carrier/customer jointly provide access under a meet point billing
23 arrangement, there is no basis for charging the Illuminet carrier/customer
24 through Illuminet. The Commission should not, therefore, sanction the Catalog
25 that would permit Qwest to do indirectly what it cannot do directly.

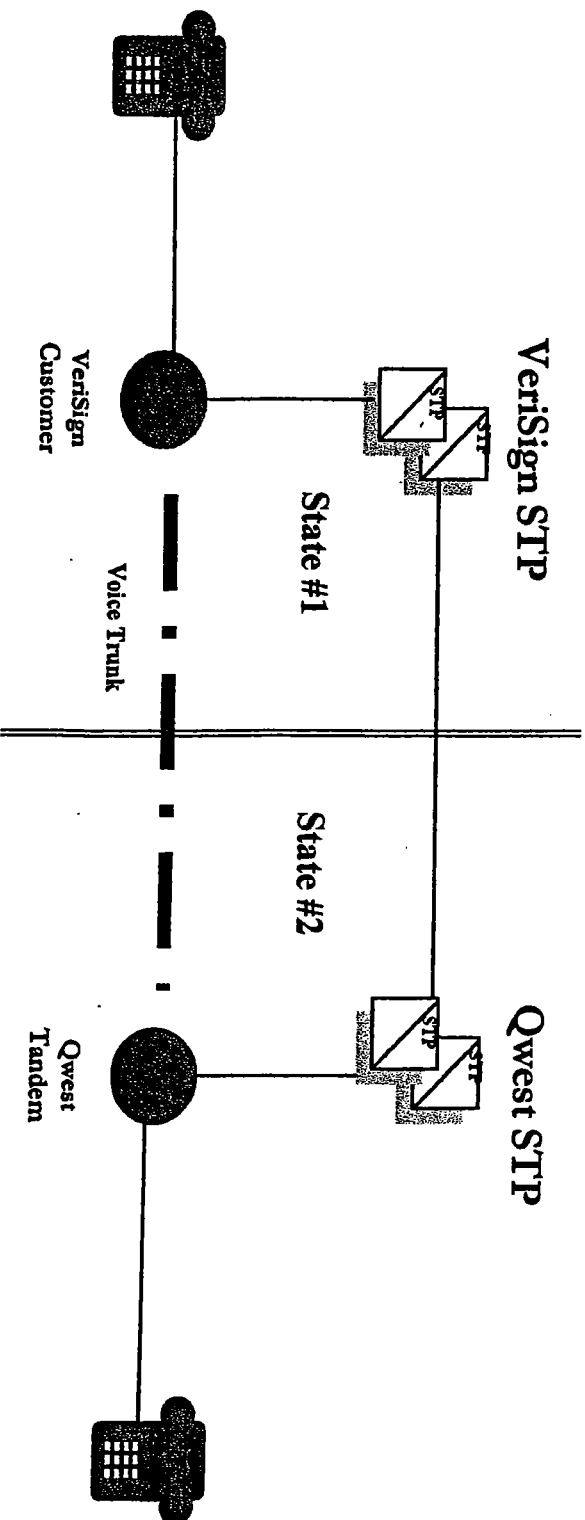
26
27 **Q. Does this end your testimony?**

28 **A.** Yes.

Exhibit No. 401
Case Nos. QWE-T-02-11
P. Florack, Illuminet, Inc.

Qwest FCC Tariff #1

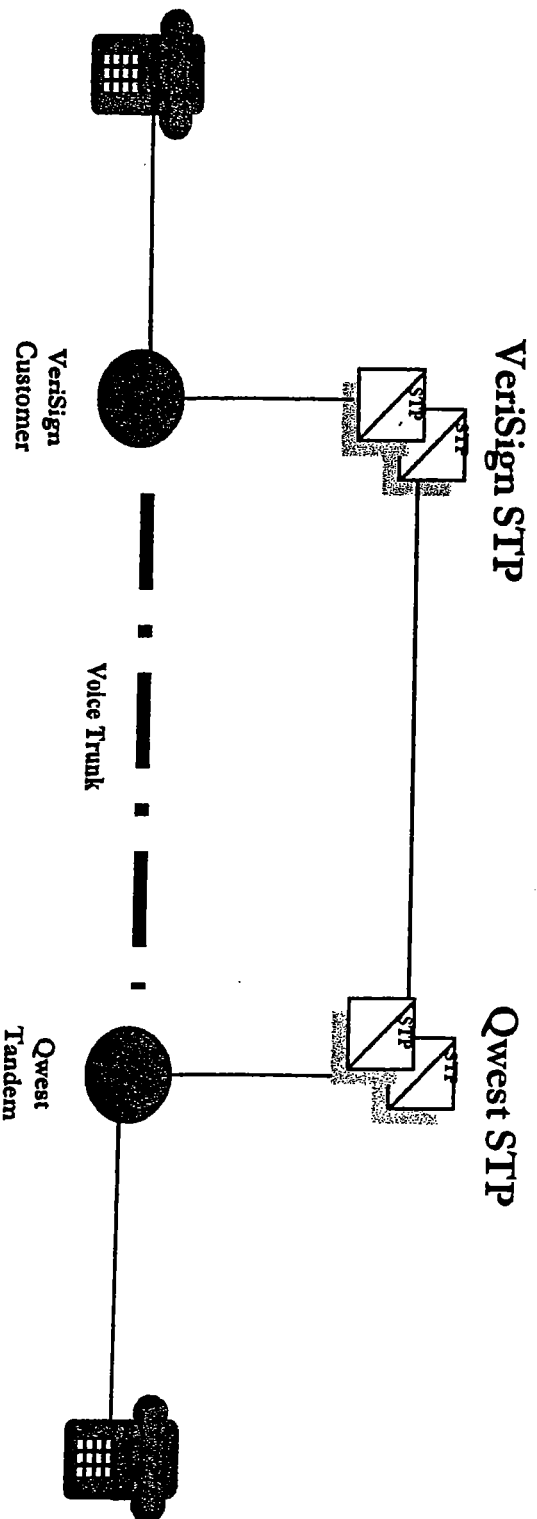
Measure Signaling between Illuminet Customer and Qwest End Office



1. Qwest End User in State #1 dials Illuminet carrier customer's End User in State #2.
 2. IAM message is Formulated in Qwest signaling network. (Charge of \$.000829 to VeriSign)
 3. IAM message is Transported in Qwest signaling network. (Charge of \$.000559 to VeriSign)
 4. IAM message is Switched in Qwest signaling network (Charge of \$.001162 to VeriSign)
 5. IAM message is then sent to Illuminet via Illuminet B-Link for completion in State #2 of Qwest End User call.
- Total Rate charged to Illuminet for completion of Qwest call = \$.00255

Qwest State SS7 Access Tariffs

*Interstate/Local EAS Signaling between Illuminet
Customer and Qwest End Office*



1. Qwest End User in State #1 dials Illuminet carrier customer's local End User (also in State #1).
 2. IAM message is Formulated in Qwest signaling network. (Charge of \$.000829 to VeriSign)
 3. IAM message is Transported in Qwest signaling network. (Charge of \$.000559 to VeriSign)
 4. IAM message is Switched in Qwest signaling network (Charge of \$.001162 to VeriSign)
 5. IAM message is then sent to Illuminet via Illuminet's B-Link for local completion in State #1 of Qwest End User call.
- Total Rate charged to Illuminet for completion of Qwest call = \$.00255

Exhibit No. 402
Case Nos. QWE-T-02-11
P. Florack, Illuminet, Inc.

[REDACTED VERSION]

Exhibit No. 403
Case Nos. QWE-T-02-11
P. Florack, Illuminet, Inc.

Idaho
Case No. QWE-T-02-11
ITA, et al. 01-004

INTERVENOR: IDAHO TELEPHONE ASSOC, CITIZENS TELECOM CO OF ID, CENTURYTEL OF ID, CENTURYTEL OF THE GEM STATE, POTLATCH TELEPHONE CO and ILLUMINET, INC.

REQUEST NO: 004

Assuming an incumbent or competitive LEC utilizes Illuminet as its SS7 provider and further assuming that Illuminet connects its SS7 network with Qwest's SS7 network, identify all companies (Illuminet, originating LEC, terminating LEC, Interexchange Carrier ("IXC"), etc.) that would be billed SS7 signaling charges from Qwest's Service Catalog for the following types of end-user initiated calls. For each scenario specify the service elements and rates that would apply to each company:

- A. An EAS call originated by a LEC end user customer terminated to a Qwest end user customer;
- B. An EAS call originated by a Qwest end user customer terminated to a LEC end user customer;
- C. A local call originated by a LEC end user customer terminated to a Qwest end user customer;
- D. A local call originated by a Qwest end user customer terminated to a LEC end user customer;
- E. An intraLATA toll call originated by a LEC end user customer terminated to a Qwest end user;
- F. An intraLATA toll call originated by a Qwest end user customer terminated to a LEC end user customer;
- G. An intrastate, interLATA toll call originated by a LEC end user customer and terminated to a Qwest end user customer;
- H. An intrastate, interLATA toll call originated by an IXC's end user customer located in Qwest's service area and terminated to a LEC end user customer, utilizing facilities provided by Qwest, the IXC, and the LEC;
- I. An intrastate, interLATA toll call originated by an IXC's end user customer located in the LEC's service area and terminated to a Qwest end user customer, utilizing facilities provided by the LEC, the IXC, and Qwest;
- J. An interstate call originated by an IXC's end user customer located in a Qwest service area and terminated to a LEC end user customer, utilizing facilities provided by Qwest, the IXC, and the LEC;
- K. An interstate call originated by an IXC's end user customer located in a LEC's service area and terminated to a Qwest end user customer,

utilizing facilities provided by the LEC, the IXC, and Qwest;

- L. An intraLATA toll call originated by a LEC's end user customer (where that LEC subtends Qwest's network) and terminated to another LEC's end user customer, utilizing facilities provided by the originating LEC, Qwest and the terminating LEC;
- M. An intraLATA toll call originated by a LEC end user customer terminated to another LEC's end user (where the terminating LEC subtends Qwest's network), utilizing the facilities provided by the originating LEC, Qwest and the terminating LEC;
- N. An intraLATA toll call originated by an IXC's end user customer located in LEC's service area (where that LEC subtends Qwest network) and terminated to another LEC's end user customer, utilizing the facilities provided by the first LEC, Qwest, the IXC, and the terminating LEC;
- O. An intraLATA toll call originated by an IXC's end user customer located in a LEC's service area and terminated to another LEC's end user customer (where that terminating LEC subtends Qwest's network), utilizing the facilities provided by the first LEC, the IXC, Qwest, and the terminating LEC;
- P. An intrastate, interLATA toll call originated by an IXC's end user customer located in LEC's service area (where that LEC subtends Qwest network) and terminated to another LEC's end user customer, utilizing the facilities provided by the first LEC, Qwest, the IXC, and the terminating LEC;
- Q. An intrastate, interLATA toll call originated by an IXC's end user customer located in a LEC's service area and terminated to another LEC's end user customer (where that terminating LEC subtends Qwest's network), utilizing the facilities provided by the first LEC, the IXC, Qwest, and the terminating LEC;
- R. An interstate call originated by an IXC end user customer located in a LEC's service area (where that LEC subtends Qwest's network) and terminated to another LEC end user customer, utilizing facilities provided by the first LEC, Qwest, the IXC, and the terminating LEC; and
- S. An interstate call originated by an IXC's end user customer located in Qwest's service area and terminated to a LEC's end user customer (where the terminating LEC subtends Qwest's network), utilizing facilities provided by the first LEC, the IXC, Qwest, and the terminating LEC.

RESPONSE:

- A. Qwest would bill Illuminet: Signal Formulation, ISUP, per call set up request, \$.000829; Signal Transport, ISUP, per call set up request, \$.000559; and Signal Switching, ISUP, per call set up request, \$.001162; per the Idaho Access Service Catalog or the FCC Tariff, based on Illuminet's self reported PIU.
- B. See response to (A) above.
- C. See response to (A) above.

D. See response to (A) above.

E. Qwest would bill Illuminet: Signal Formulation, ISUP, per call set up request, \$.000829; Signal Transport, ISUP, per call set up request, \$.000559; and Signal Switching, ISUP, per call set up request, \$.001162; per the Idaho Access Service Catalog or the FCC Tariff, based on Illuminet's self reported PIU. Insufficient information has been provided in this request to determine any further charges.

F. See response to (E) above.

G. See response to (E) above.

H. See response to (E) above.

I. See response to (E) above.

J. See response to (E) above.

K. See response to (H) above.

L. See response to (E) above.

M. See response to (E) above.

N. See response to (E) above.

O. See response to (E) above.

P. See response to (E) above.

Q. See response to (E) above.

R. See response to (E) above.

S. See response to (E) above.

Respondent: Don Lewis, Manager

Idaho
Case No. QWE-T-02-11
ITA, et al. 01-041

INTERVENOR: IDAHO TELEPHONE ASSOC, CITIZENS TELECOM CO OF ID, CENTURYTEL
OF ID, CENTURYTEL OF THE GEM STATE, POTLATCH TELEPHONE CO and ILLUMINET,
INC.

REQUEST NO: 041

Can Qwest currently separately identify, measure and document its SS7
signaling associated with local, EAS and/or CMRS traffic from SS7 signaling
associated with interstate toll traffic and intrastate toll traffic? If so,
will Qwest provide that detail for purposes of billing under the Service
Catalog? If not, please explain why not.

RESPONSE:

No. Qwest cannot provide that detail for purposes of billing under the
Service Catalog. It is not available.

Respondent: Don Lewis, Manager

Idaho
Case No. QWE-T-02-11
ITA, et al. 01-042

INTERVENOR: IDAHO TELEPHONE ASSOC, CITIZENS TELECOM CO OF ID, CENTURYTEL OF ID, CENTURYTEL OF THE GEM STATE, POTLATCH TELEPHONE CO and ILLUMINET, INC.

REQUEST NO: 042

Is equipment available that would enable Qwest to measure and bill for SS7 signaling services used for long distance traffic apart from local, EAS and/or CMRS intraLATA traffic? If so, please provide technical data and information regarding the equipment that provides this service. How much would it cost for Qwest to deploy such equipment in Idaho?

RESPONSE:

The measurement equipment purchased by Qwest from Agilent Technologies is technically capable of distinguishing between long distance traffic apart from local, EAS and/or CMRS intraLATA traffic. However, the billing methodology and system programming Qwest implemented using this equipment does not retain and process all the required fields to determine the jurisdiction of each Initial Address Message ("IAM") based on the associated call. In designing the billing methodology and system programming, this functionality could not be accommodated within a reasonable timeframe and budget. Thus, Qwest uses the PIU methodology to jurisdictionalize signaling messages instead. To redesign the billing methodology and system programming would be extensive, unduly burdensome, and prohibitively expensive.

Qwest objects to the second part of this request in that such information is commercially available to Complainants. Notwithstanding this objection, Qwest states it does not have the information requested.

Qwest also objects to the third part of this request inasmuch as that the requested information is irrelevant and not likely to lead to the discovery of admissible evidence. Notwithstanding this objection, Qwest states that the information requested is unknown.

Respondent: Don Lewis, Manager

Idaho
Case No. QWE-T-02-11
ITA, et al. 01-044

INTERVENOR: IDAHO TELEPHONE ASSOC, CITIZENS TELECOM CO OF ID, CENTURYTEL
OF ID, CENTURYTEL OF THE GEM STATE, POTLATCH TELEPHONE CO and ILLUMINET,
INC.

REQUEST NO: 044

Is it Qwest's position that if an entity wanted to distinguish SS7 signaling
associated with "local" traffic versus other intrastate traffic, that such
entity would need to establish separate SS7 connections specifically for that
"local traffic"?

RESPONSE:

If the entity desires to bifurcate its traffic into local and other
intrastate traffic, then such entity could do so by purchasing separate SS7
connections. Qwest, however, does not require such a purchase.

Respondent: Don Lewis, Manager

Exhibit No. 404
Case Nos. QWE-T-02-11
P. Florack, Illuminet, Inc.

Illuminet Proposed Language for Qwest Access Service Catalog

CCSAC Jurisdictional Reporting

When a customer initially orders CCSAC Service in a LATA, the customer shall state in its order a PIU factor *and a Percent Non-Chargeable Usage (which would include local, Extended Area Service, intra MTA wireless and meet point exchange access services) ("PNU")* factor in whole numbers (i.e., a number of 0-100). The Company will designate the number obtained by subtracting the projected PIU factor furnished by the customer from 100 as the projected intrastate percentage of use. *The Company will designate the number obtained by subtracting the PNU from the projected intrastate percentage of use as the projected intrastate access ("PSA") percentage of use for services provided under this catalog.* The projected PIU factor is used by the Company to apportion the message, monthly and non-recurring charges associated with the CCS link, STP Port, Entrance Facility and Direct Link Transport between interstate and intrastate. *The projected PNU factor is used by the Company to apportion the projected intrastate percentage of use between access services provided under this catalog and CCSAC service provided in conjunction with the PNU services provided pursuant to interconnection agreements or local service tariffs.* If the customer does not provide a PIU factor, the Company will apply a default PIU factor of fifty percent (50%).

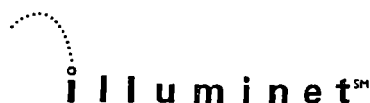
For the purpose of this catalog, where the customer is a third-party provider of CCS7 services to its customers ("Third Party Customer"), the customer will develop its projected PIU, PSA and PNU factors based upon a weighted average of the PIU, PSA and PNU factors of its Third Party Customers' end-user traffic. Local usage utilized in determining the PNU for the Third Party Customers will include all end-user traffic subject to interconnection agreements subject to Section 251 of the Communications Act and service provided pursuant to local service tariffs. In the event a Third Party Customer does not provide a projected PIU, PSA or PNU, a fifty percent (50%) PIU will be utilized for that Third Party Customer to determine interstate usage, and 50% of the intrastate usage will be designated as PSA.

The PIU factor will be used by the Company until a revised PIU factor is reported as set forth in C., following. A LATA-level PIU factor shall be provided for CCSAC Service provided within a LATA for the revised reports.

Exhibit No. 405
Case Nos. QWE-T-02-11
P. Florack, Illuminet, Inc.

[REDACTED VERSION]

Exhibit No. 406
Case Nos. QWE-T-02-11
P. Florack, Illuminet, Inc.



November 22, 2000

VIA FEDERAL EXPRESS

Beth Halvorson
Vice President, Wholesale Major Markets
Qwest
200 S. Fifth Street
Minneapolis, MN 55042

Dear Ms. Halvorson:

On behalf of ILLUMINET, this letter is written to request a meeting with you and the necessary legal representatives of Qwest to discuss the outstanding issues related to the appropriateness of Qwest's charges to ILLUMINET for Signaling System No. 7 (SS7) messaging. As you are aware, these issues have been the subject of on-going discussions between our two companies and, in fact, Qwest's SS7 message charges are also the subject of a continuing dispute between our companies. Moreover, as Qwest is also undoubtedly aware, the Qwest SS7 message charges that have been received by ILLUMINET are substantial. These charges, in turn, directly impact ILLUMINET's competitive position as an alternative SS7 provider in the Qwest service areas.

Accordingly, in order to facilitate the requested discussions, ILLUMINET has prepared the enclosed position paper that describes the regulatory construct that ILLUMINET believes should be followed in determining when SS7 message charges should be assessed. ILLUMINET has also authorized its Washington, D.C. counsel to forward a copy of this position paper to Qwest representatives also located in Washington, D.C.

Because Qwest is well aware of the issues that need to be addressed concerning this matter, ILLUMINET requests that Qwest provide its response to this letter by December 1, 2000, and that the response include the earliest dates possible that the necessary representatives of Qwest can meet with their ILLUMINET counterparts. Again, ILLUMINET stresses that it fully expects Qwest's prompt attention to this issue in light of our discussions and the impact that the Qwest SS7 message charges has on ILLUMINET's competitive position.

ILLUMINET looks forward to your response.

Very truly yours,

F. Terry Kremian
Executive Vice President & COO

cc: D. Nicol, ILLUMINET
P. Florack, ILLUMINET
R. Wolf, ILLUMINET
D. Cosson, T. Moorman, Kraskin, Lesse & Cosson, LLP
Vicki Boone, Qwest
Brian Ashby, Qwest
Dave Hahn, Qwest
Char Kudar, Qwest
Kirk Andrews, Qwest

POLICY POSITION PAPER ON THE PROPER APPLICATION OF SS7 MESSAGE CHARGES

ISSUE: What SS7 message charges are applicable to, and what information should be provided to support charges for, interstate interexchange toll traffic, local, and Extended Area Service traffic that is originated by a customer/carrier of Illuminet and terminated by a Bell Operating Company, and *vice versa*?

SUMMARY OF POSITION

The fact that a provider of a competitive Signaling System No. 7 ("SS7") network (such as Illuminet) has interconnected its network with that provided by a Bell Operating Company ("BOC") via that BOC's interstate access service tariff does not authorize that BOC to charge improperly for SS7 message charges that fall outside of the interstate access charge model. Rather, the assessment of SS7 message charges by the BOC or an Illuminet carrier/customer should be determined by applying the terms and conditions of the agreement associated with the specific jurisdictional class of traffic associated with the voice and/or data traffic between the BOC and the Illuminet carrier/customer (i.e., the interconnection arrangements for local service and/or "EAS" traffic or the access tariff for interexchange toll traffic). To ensure the proper application of these agreements, the entity assessing SS7 message charges should also provide sufficient detail to permit the company receiving such charges to verify independently that such charges are assessed in compliance with the proper agreement. Moreover, to the extent that the affected carriers agree and the BOC is able to properly and accurately provide billing information relative to each Illuminet customer/carrier being billed, Illuminet would be willing to discuss clearinghouse mechanisms for the efficient exchange of payments for SS7 message charges.

DISCUSSION

Illuminet is a provider of SS7 services for a variety of customers/carriers including Interexchange Carriers ("IXCs"), Competitive Local Exchange Carriers ("CLEC"), Incumbent Local Exchange Carriers ("ILECs") and Commercial Mobile Radio Service providers ("CMRS Providers"). Illuminet deployed its network to provide a competitive alternative to the SS7 services of other providers, including the BOCs. Illuminet has achieved nationwide connectivity of its SS7 network with other providers, including the SS7 networks of the BOCs. In order to ensure proper connectivity with limited delays on behalf of its customer/carriers, Illuminet arranged connectivity with the BOCs via their respective interstate access service tariffed offerings, and, in fact, has arranged for connectivity with Qwest Corporation ("Qwest") (formerly US WEST Communications) through its F.C.C. Tariff No. 1.¹

¹ For purposes of this paper, it is assumed that facilities and port charges required to connect the BOC's SS7 network with that operated by Illuminet will continue to be assessed by

In light of recent developments in SS7 technology (primarily the ability to measure SS7 usage) and the desire to provide unbundled access, Qwest has introduced new SS7 rate elements that are billed on a per-message basis. Illuminet has been informed by various BOCs that these new charges are intended to provide recovery on a revenue-neutral basis of the costs associated with discrete SS7 functions previously bundled within the BOCs' minute-of-use charges applied to IXCs and other access customers associated with the underlying voice and/or data traffic. Since Illuminet does not carry the underlying voice or data traffic, these charges were not previously billed to or through Illuminet. Notwithstanding claimed "revenue-neutrality," Illuminet has experienced an inappropriate increase of charges from Qwest directly as a result of these new SS7 message charges, particularly given the fact that the majority of Illuminet's SS7 messaging is related to local and/or EAS traffic being generated by its CLEC, ILEC and CMRS Provider customers.

A. Record Detail is Required to Verify Accuracy of Charges

Based on its review of the new SS7 rate element charges, Illuminet continues to question whether those charges have, in fact, been properly assessed. Illuminet agrees that the SS7 message charges related to interstate telephone toll service should properly follow the "access charge" model developed by the Federal Communications Commission ("Commission" or the "FCC"). Under this model, Illuminet would expect Qwest to bill SS7-related charges for the originating or terminating functions that Qwest performs on an interstate toll call that is originated by an end user of Illuminet's IXC customer. In these instances, Illuminet is providing the various SS7 network functionalities on behalf of the IXC prior to that IXC carrying the voice and/or data traffic of the end user at issue.² However, because Qwest has provided insufficient information to Illuminet associated with the new SS7 message charges, Illuminet is not able to verify the charges it has received from Qwest.

While Illuminet continues its investigation to ensure proper application of charges by Qwest, the accuracy of such charges cannot be determined until Qwest is able to provide disaggregated billing information by point code, by jurisdiction or by any other method by which the accuracy of the billed charges can be determined. Only in this manner can Illuminet or any of its carrier/customers receiving such charges be assured that the charges by Qwest are properly assessed under the applicable agreement between Qwest and the Illuminet carrier/customer.

the BOC pursuant to its interstate access tariff. However, Illuminet recognizes that other types of arrangements may exist for connectivity since the passage of the 1996 revisions to the Communications Act of 1934, as amended (the "Act").

² Similarly, where the BOC is the intraLATA and/or interLATA toll provider for the voice and/or data traffic, Illuminet would expect that its CLEC and/or ITC customers would assess the BOC similar SS7 message charges.

Because of the lack of carrier-specific information required to verify Qwest's charges, Illuminet is concerned that SS7 message charges are being assessed by Qwest pursuant to its interstate access tariff on local and/or EAS traffic where the related voice and/or data traffic is being originated by a Qwest customer as well as terminated to a Qwest customer. In these instances, the voice and/or data traffic at issue is not "telephone toll service" nor is the SS7 messaging associated with that traffic "exchange access" as those terms are used in the Act, and as applied in the interstate access charge environment. Therefore, this traffic and the associated SS7 message charges are not properly subject to Qwest's interstate access tariffs.

**B. Additional Record Detail will also Allow Proper
Application of Existing Agreements**

Even assuming that the necessary detail is being provided for proper billing and bill verification, the question still remains regarding what charges can be assessed by Qwest to Illuminet for SS7 messages where the related voice and/or data traffic is jurisdictionally local and/or EAS, and where the voice and/or data traffic is exchanged between Qwest and an Illuminet customer/carrier, i.e., either the CLEC, the ILEC or the CMRS Provider. Based on its review, Illuminet believes that the only logical conclusion is that billing for SS7 message charges for local and EAS traffic is determined by the arrangements between Illuminet's customers/carriers and Qwest.

Illuminet provides its SS7 services for the benefit of its customers/carriers, and has no relationship with Qwest other than that which established its connectivity for exchange access services. It is, therefore, incorrect to assume (as apparently some carriers have) that the "payor" of all SS7 message charges is Illuminet under the FCC's access charge model. As discussed above, the SS7 messaging associated with local and/or EAS is not "exchange access" as that term is defined under the Act. Moreover, Illuminet has not entered into any agreements with or purchased tariffed services from Qwest with respect to charges for SS7 messages associated with local and EAS traffic. Rather, the only privity of contract that exists for this type of traffic is between Qwest and the Illuminet customer/carrier. Accordingly, it is those arrangements that are the proper focus for determining whether SS7 message charges are appropriate for the exchange of local and/or EAS traffic, and, if so, how and when such charges should be assessed by either Qwest or the Illuminet customer/carrier.

Illuminet is aware of three billing arrangements that may have been included in the agreements that carriers have entered into with the various BOCs for the exchange of properly defined local traffic and/or EAS. Under the first arrangement, the carriers agree to a "Bill and Keep" arrangement for both the actual local and/or EAS voice and data traffic that is exchanged as well as the SS7 messages associated with that traffic. In these instances, Illuminet would not expect to be billed SS7 message charges from the BOC. Nor would Illuminet expect that its customers/carriers would bill the BOC directly or authorize Illuminet to bill the BOC on their behalf.

The second type of arrangement is where the BOC and the Illuminet carrier/customer have entered into a "minute of use" arrangement for the underlying voice/data traffic pursuant to Section 251(b)(5) of the Act, but have not stated a specific rate for the SS7 signaling associated with the exchange of the properly-defined local voice and data traffic. In these instances, Illuminet would expect that the charges associated with the SS7 messages for this traffic would be part of (i.e., bundled with) the minute of use "reciprocal compensation" rate that the BOC and the Illuminet customer/carrier agreed to pursuant to Section 251(b)(5) of the Act. Thus, Illuminet would not expect to be billed charges for SS7 messages associated with the local traffic terminated by the BOC that is delivered to it by an Illuminet customer/carrier. Likewise, Illuminet would not expect that its customers/carriers would charge the BOC separately for the SS7 messages associated with the local traffic terminated by them.

Finally, Illuminet is aware of interconnection agreements entered into pursuant to Section 251(b)(5) of the Act that have a separate, yet reciprocal, rate for SS7 signaling associated with the exchange of properly-defined local voice and data traffic. In these instances, where an Illuminet customer/carrier terminates local traffic from the BOC, the Illuminet customer/carrier would assess the proper SS7 message charges to the BOC. Illuminet would expect to receive SS7 message charges only where the Illuminet customer/carrier has specifically authorized the BOC to pass through its SS7 message charges to Illuminet for those charges applicable to that Illuminet customer/carrier's originated local traffic to the BOC.³ In these instances, however, Illuminet would be willing to enter into proper billing and collection arrangements with the applicable carriers in an effort to create a more efficient clearinghouse for the payment of applicable SS7 message charges.

CONCLUSION

While other arrangements between a BOC (and other ILECs) and an Illuminet customer/carrier may be in existence, Qwest should not confuse the fact that Illuminet has interconnected its competitive SS7 signaling network with Qwest via Qwest's interstate access service tariff as a vehicle to charge improperly for traffic that falls outside of the FCC's access charge model. The lack of bill detail provided by Qwest required for Illuminet to verify the Qwest SS7 message billing only serves to highlight and exacerbate the problem.

³ To date, however, Illuminet is not aware of any such authorization being provided by an Illuminet carrier/customer to a BOC.

In any event, Illuminet's role, even where the access charge model applies, is as the underlying provider of the SS7 signaling network for the IXC, or a CLEC, ILEC or CMRS Provider. Thus, the assessment of the charges by Qwest are determined by applying the terms and conditions of underlying agreement that addresses the specific jurisdictional class of traffic associated with the voice and/or data traffic between Qwest and the Illuminet carrier/customer, i.e., the interconnection arrangements or access tariff. This conclusion properly reflects the value to the entity whose end users generate the underlying voice and/or data traffic of having that traffic carried over the network in the most efficient manner. Moreover, to the extent that the affected carriers agree and Qwest is able to properly and accurately provide billing information relative to each Illuminet customer/carrier being billed, Illuminet would be willing to discuss clearinghouse mechanisms for the efficient exchange of payments for SS7 message charges.